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09/679,494	10/04/2000	Maurizio Pilu	B-4007 618260-6	8023

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EXAMINER	
LEE, CHEUKFAN	
ART UNIT	**PAPER NUMBER**
2622	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/679,494	PILU ET AL.	
	Examiner	Art Unit	
	Cheukfan Lee	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 7-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1,2,7-19 and 25* is/are allowed.

6)☒ Claim(s) *20-24* is/are rejected.

7)☒ Claim(s) *26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/7/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1, 2, and 7-26 are pending. Claim 26 is newly added. Claims 1, 7, 20, and 25 are independent.

2. The rejection of claim 20 under 35 U.S.C. 102(e) is withdrawn. The examiner found Applicant's arguments convincing that claim 20 is not anticipated by Toyoda et al. (U.S. Patent No. 6,507,415) with respect to the operation for capture of three successive images in series. Please refer to Applicant's remarks filed August 24, 2004, page 16, paragraph 2.

A rejection of claim 20 under 35 U.S.C. 103(a) follows.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoda et al. (U.S. Patent No. 679,494).

Regarding claim 20, Toyoda et al. discloses an image processing device and an image processing method for scanning a large original having a physical area greater than the scanning area of the scanner (1) (col. 9, lines 15 – col. 16, line 9, especially col. 10, line 57, col. 11, lines 12 and 67, col. 12, line 40, col. 13, line 35, and col. 14, line 2). The device includes a scanner (1), a processing section (2, 4, 5, 7, 9, 10), at least

one memory (3, 6, 8, 12), a detector (charge-coupled device CCD) for capturing an image as claimed (col. 9, line 23), and an inherent user interface for activating the detector (CCD) to perform a series of image data capture operations (the joint mode, Figs. 2)a) to 4(b)) (col. 10, lines 38 – col. 11, line 15). In the exemplary embodiment, the number of image data capture operations for a large original is two (two scans). The processor (processing sections 4, 5, 7, 9) processes a plurality of successive images from the two scans of the large document to combine the successive images into combined image data representing a full image of the original.

In a joining mode, a large original G is scanned in two scans. In the first scan, a first original portion G1 of the original G positioned on the scanner is scanned, producing a first original image data G1'. The original G is rotated 180 degrees, and a second original portion G2 positioned on the scanner is scanned, producing a second original image data G2' to be joined with the first original image data G1'. Both data G1' and G2' are converted to digital image data. In the exemplary embodiment, the image data G1' and G2' are referred to as search image data and reference image data, respectively. The first image data G1' is processed to adjust the scale of the first image by reducing the size of the first image (to ½, ¼, or 1/8 of the original size) (col. 13, lines 30-45). Scaling of an image includes reduction of the image and enlargement of the image. The first image data G1' is processed in mid-processing section (4) and matching data producing section (5) to detect the features of the first image data (col. 12, lines 15-39). The second image data G2' is also processed to adjust its scale by reducing the size of the second image data (col. 13, lines 40-60). After the matching

data of the first and second image data are produced. The first image data and the second image data are joined (combined) in the joining section (9) to produce image data of a combined full image (col. 12, line 65 – col. 13, line 5, col. 15, lines 47-51).

With regard to the claimed "operation for capture of three successive images", Toyoda et al. discloses "Accordingly, scanning of the original is carried out in two scans, as shown in Figs. 2(a) and 2(b). However, the number of scans of an original is determined by the size of the original and the maximum size readable by the scanner, and thus is changed as needed for originals of different sizes." See col. 11, lines 55-65.

From the above statement, one of ordinary skill in the art would have known how many scans are needed, i.e., two scans or three scans, knowing the size of the large original. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Toyoda et al. such that the scanner is activated at the user interface to perform an operation for scanning three successive images in series in a case the number of scans determined by the original size is three, in order to capture all images of the original.

As to the claimed image processor for processing a plurality of successive said capture images to combine said plurality of successive images into a combined image data representing a full image, of which said plurality of image data are subimages, this claim limitation is met clearly met by the processing sections of Toyoda et al. discussed above, since this claim limitation does not specifically include three images from the three scans and details of processing such as application of a transform to produce a transform image data and combining the transform image data with already combined

image data (as claimed in allowed independent claim 7). Even if three images were to be combined, one of ordinary skill in the art would have understood the technique of combining the images based on the technique of combining the two images from two scans of the large original, to the extent of the language for the claimed processor.

Regarding claim 21, the inherent user interface discussed for claim 20 inherently comprises a plurality of switches operable by a human hand (col. 10, lines 38-48). Note the switching between the ordinary mode and the joining mode.

Regarding claim 22-24, Toyoda et al. discussed for claim 20 (with respect to the first embodiment) further discloses a user interface (Fig. 24, in the third embodiment) (col. 33, lines 10-47). The user interface (Fig. 24) comprises a dialogue box displayed on a visual display unit. The dialogue box comprises icons selectable by the user. The visual display shows icons for positioning of and activating a document for a first step of a two-step image capture process and for activating, operating and positioning of the document for a second step of the two-step image capture process. As discussed for claim 20, the number of image capture operations for a large original can be two (two scans) of three (three scans) (col. 11, lines 55-65) based on the reasons of obviousness given for claim 20. The processor (processing sections 4, 5, 7, 9) processes a plurality of successive images from the two scans or the three scans of the large document to combine the successive images into combined image data representing a full image of the original. The number of scans of the large original is two in the exemplary

embodiment(s). In a condition that the number of scans for the large original is three as discussed for claim 20 above, one of ordinary skill in the art would have realized that an icon for selecting a three-step image capture process is necessary. Using the technique of Toyoda et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide in the display unit an icon or icons for selecting and activating a three-step image capture process and related operations in the three-step process in order to better assist the use when a three-step image capture process is to be selected.

Further , although the user interface features discussed for claims 22-24 are not explicitly taught by Toyoda et al. in a separate embodiment, the third embodiment, than the first embodiment which the rejection of claim 20 relies upon, because one of the difference between the first and the third embodiments is that the image processing device (having the scanner and inherent user interface) in the first embodiment is applied to the apparatus in the third embodiment, which is a digital image forming apparatus having the functions of a copying machine, facsimile and printer (col. 21, lines 45-52), one of ordinary skill in the art would have realized the benefit of employ the user interface of the third embodiment (Fig. 24, col. 33, lines 20+), which is to better assist the user. therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the user interface of the third embodiment as modified in the previous paragraph, to better assist the user.

5. Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 1, 2, 7-19, and 25 are allowed.

7. The following is an examiner's statement of reasons for allowance:

New dependent claim 26 would be allowable because Toyoda et al. does not disclose a feature detector for randomly detecting a plurality of features of the image data before combining the image data from different scans, in combination with other limitations of claim 26 and its independent claim 20.

Claim 25 has been amended to further define the feature detector to be a detector for randomly detecting a plurality of features of the image data. The limitation in combination with other limitations of claim 5 are not taught by Toyoda et al.

Claim 1 has been amended to further define the matching of the first image data to the second image data to be matching the first data and the second data by randomly selecting a plurality of identifiable features in the first image data and searching the second image data for a corresponding plurality of identifiable features and calculating a transform for matching the first data with the second data based on pairs of identifiable features in the first data and corresponding identifiable features in the second data. This "randomly selecting" limitation in combination with other limitations of claim 1 is not taught by Toyoda et al.

Claim 2 depends on claim 1.

Claims 7-19 were allowed in the previous Office Action. Reasons for allowance given in the previous Action are repeated below.

Claim 7 and its dependent claims 8-16 are allowable over Toyoda et al. (U.S. Patent No. 6,507,415) because Toyoda et al. does not disclose applying a transform to match second and third image data to produce a transform image data and combining the transform image data with first combined image data, which is produced by combining the first image data and the second image data, to produce a combined image data representing the original image of the large original. Although Toyoda et al. states that the number of scans of a large original is determined by the size of the original and the maximum size readable by the scanner, and thus is changed as needed for originals of different sizes (col. 11, lines 60-65), Toyoda et al. does not disclose applying a transform to produce a transform image data and combining the transform image data with already combined image data as claimed in claim 7.

Claim 17 and its dependent claims 18 and 19 are allowable over the closest prior art Toyoda et al. (U.S. Patent No. 6,507,415). Toyoda et al. discloses that the number of scans of the large original is not limited to two scans; the number of scans of an original is determined by the size of the original and the maximum size readable by the scanner (1) (col. 12, lines 60-65). However, Toyoda et al. does not teach that, when

positioning the document in a third orientation, the second shortest edge of the document lies adjacent the second longest edge o the image capture are, such that a third portion of the document or original corresponding to a second end of the document overlaps the image capture area. That is because, even in the case the large original is long that it needs three scans instead of two scans, in positioning the third portion of the original document, Toyoda et al. rotates the document such that the second shortest edge of the document is adjacent the first longest edge of the image capture area, not the second longest edge of the image capture area as required by claim 17.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheukfan Lee whose telephone number is (703) 305-4867. The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (703) 305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cheukfan Lee
March 31, 2005

Cheukfan Lee